

REMARKS

Claims 1-4 and 6-11 are all the claims pending in the application.

In Paragraph No. III of the Action, claims 1-4 and 6-11 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Uenishi et al (6,489,080).

Applicants submit that this rejection should be withdrawn because Uenishi et al '080 does not disclose or render obvious the positive-working resist composition of the present invention.

As recited in independent claim 1, the present invention relates to a positive-working resist composition. The resist composition includes:

(A1): A resin containing a repeating unit represented by formula (1) shown in claim 1 and a repeating unit represented by formula (2) in claim 1. The resin has a property of being insoluble or sparingly soluble in an alkali developing solution and becoming soluble in an alkali developing solution by the action of an acid.

(B): A compound capable of generating a sulfonic acid upon irradiation with active rays or radiation, in an amount of from 5 to 20% by weight based on the total solids content of the resist composition.

And (D): A compound capable of generating a carboxylic acid upon irradiation with active rays or radiation.

In the Amendment filed November 17, 2005, in response to an anticipation rejection based on Uenishi et al '080, Applicants amended claim 1 to incorporate the recitation of original claim 5. Thus, as noted above, claim 1 now recites that the positive-working resist composition

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further includes (D) a compound capable of generating a carboxylic acid upon irradiation with active rays or radiation. In the previous Office Action mailed August 22, 2005, claim 5 was not rejected for anticipation based on Uenishi et al '080.

The Examiner in the present Action applies the anticipation rejection to the claims as amended, apparently relying on the reasoning set forth in the first full sentence of page 3 of the Action, which states: "One or more other types of photo-acid generators including carboxylic acid generator (compound PAG3-16, PAG4 (15, 21 and 31) are taught and suggested to be used with the sulfonic acid generator in a ratio of 100/0 of the other types of acid generator to sulfonic acid generator on column 18, line 58 to column 19, line 8." The Examiner asserts that Uenishi et al '080 discloses that other types of photo-acid generators, including carboxylic acid generators, may be used with the sulfonic acid generator of Uenishi et al. Specifically, the Examiner cites compounds PAG 3-16, PAG 4-15, PAG 4-21, and PAG 4-31 as being carboxylic acid generators.

With due respect, the Examiner's characterization of Uenishi et al '080 is not correct, and the rejection should be withdrawn. Compounds PAG 3-16, PAG 4-15, PAG 4-21, and PAG 4-31 of Uenishi et al '080 are compounds which generate a sulfonic acid ($R-SO_3^+$). They do not generate a carboxylic acid. Uenishi et al '080 does not disclose or suggest the positive working resist composition of the present invention, which includes elements (A1), (B) and (D), where (B) is a compound capable of generating a sulfonic acid, and (D) is a compound capable of generating a carboxylic acid.

Reconsideration and withdrawal of the section 102 anticipation rejection of claims 1-4 and 6-11 based on Uenishi et al '080 are respectfully requested.

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In Paragraph No. IV of the Action, claims 1-4 and 6-11 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Uenishi et al '080 in view of Ishihara et al (2004/0033434).

Applicants submit that this rejection should be withdrawn because Uenishi et al '080 and Ishihara et al do not disclose or render obvious the positive-working resist composition of the present invention, either alone or in combination.

As discussed in response to the preceding rejection, Uenishi et al '080 does not disclose a compound capable of generating a carboxylic acid as a PAG (photo acid generator) at all. Thus, Uenishi et al '080 necessarily fails to disclose or suggest a positive working resist composition comprising (A1), a resin containing a repeating unit represented by formula (1) shown in present claim 1 and a repeating unit represented by formula (2) shown in present claim 1, (B) a compound capable of generating a sulfonic acid upon irradiation in an amount of from 5 to 20% by weight based on the total solids content of the resist composition, and (D) a compound capable of generating a carboxylic acid upon irradiation. For at least these reasons, Uenishi et al '080 does not disclose or render obvious the positive working resist composition of the present invention.

Ishihara et al does not make up for the deficiencies of Uenishi et al '080. While a compound capable of generating a carboxylic acid is essential in Ishihara et al, Ishihara et al does not teach the combined use of (D) a compound capable of generating a carboxylic acid, with (A1) a resin containing a repeating unit represented by formula (1) and a repeating unit represented by formula (2), and (B) a compound capable of generating a sulfonic acid, in a specific amount, as claimed in the present application.

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Even if a prima facie case of obviousness could be established based on Uenishi et al '080 in view of Ishihara et al, which it cannot, Applicants have submitted evidence of unexpectedly superior results which rebuts any prima facie case of obviousness and confirms the patentability of the present invention. See the Declaration of Mr. Shoichiro Yasunami, the first-named inventor of the present application, filed with the Amendment Under 37 C.F.R. § 1.111 on November 17, 2005. The evidence in Mr. Yasunami's Declaration is discussed in detail at pages 9-10 of the Amendment filed November 17, 2005.

The Examiner in the present Action states that the Declaration evidence is not persuasive. With due respect, the Examiner's criticisms of the evidence are not valid. The evidence is entitled to substantial weight and it confirms the patentability of the present invention.

In Paragraph No. 1 bridging pages 5 and 6 of the Action, the Examiner appears to express two concerns. The first concern appears to be that Applicants have not provided enough examples of the resist composition of the present invention to fairly say that the results are representative of the full scope of the invention as claimed. In this regard, Applicants submit that the two examples of the invention provided in the Declaration are fairly representative of the full scope of the invention as presently claimed.

The Examiner's second concern is that the reported results "are on the reacted, cured and developed into the image pattern but not the photopolymer precursor composition as claimed." The Examiner maintains that "the tested results as reported have a little or no value on the claimed photopolymer precursor composition." In this regard, Applicants respectfully submit that the Examiner's position has no merit. The evidence of how well the claimed photoresist performs when it is imaged, exposed and then developed is relevant to the patentability of the

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claimed resist composition, contrary to what the Examiner asserts. Evidence of this nature in support of the patentability of photoresist compositions is submitted on a daily or near-daily basis to the USPTO.

In Paragraph No. 2 at page 6 of the Action, the Examiner asserts that there is “no advantage for the claimed composition (such as stability ...) over any of the applied references for the patentability of a react-able and cure-able photopolymer precursor as claimed.” With due respect, in Applicants’ view, this is not relevant. There is nothing wrong with relying on evidence of how the photoresist composition works when it is actually used, since that is the intended use of a photoresist composition. The Examiner appears to be suggesting that only evidence relating to properties of the photoresist composition before it is imagewise exposed and developed are relevant. Legally, the Examiner’s position is not correct. Just as a chemical compound and all its properties are considered to be inseparable for purposes of patentability, see, e.g., In re Papesch, a composition and all its properties are inseparable for purposes of patentability. A photoresist’s properties include how it behaves upon image-wise exposure and development. And the very phrase “unexpectedly superior results” shows that we consider the results obtained when using an invention, here, a photoresist, in judging the invention’s patentability.

In Paragraph 3, bridging pages 6-7 of the Action, the Examiner states: "The showing results are reported on the reacted and cured photopolymer after being exposed a radiation. It is improper." At this point, the Examiner is repeating the same concern expressed above. Applicants believe the Examiner's position does not have merit from a legal standpoint, as discussed above.

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In Paragraphs 3-4, 5-6 and 7-8 at pages 7-8 of the Action, the Examiner asks "Why is none of the applied Uenishi et al resins not tested as broadly as claimed?"; "Why is none of the applied Uenishi et al sulfonic acid generator not tested as broadly claimed?"; and "Why is none of the applied Uenishi et al nitrogen-containing basic compound not tested as broadly claimed?"

In this regard, the law is that Applicants are obligated to compare to the closest actual embodiment disclosed in the prior art, in this case, Uenishi et al '080. The comparative examples provided in Mr. Yasunami's Declaration are considered to be as close or closer to the present invention than the closest actual embodiment disclosed in Uenishi et al. The constitution of Uenishi et al is far from that of the present invention because, as mentioned above, the composition of Uenishi et al does not contain a compound capable of generating a carboxylic acid in first place. It is questionable whether technically meaningful data could even be obtained by conducting an experiment comparing the present invention to an exact reproduction of Uenishi et al, since there are such significant differences between the constitution of the present invention and Uenishi et al. Consequently, in the comparative experiments shown in the previously submitted Declaration, Applicants, although not legally required to do so, constructed Comparative Examples 1 and 2 as the closest constitutions to the present invention that could be expected from Uenishi et al. From a legal standpoint, these comparative experiments are sufficient for a comparison with Uenishi et al, since they are even closer to the present invention than Uenishi et al '080 itself.

In view of the above, reconsideration and withdrawal of the § 103(a) rejection based on Uenishi et al '080 in view of Ishihara et al '434 are respectfully requested.

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In Paragraph No. V at page 8 of the Action, claims 1-4 and 6-11 are rejected under 35 U.S.C. § 102(a) as allegedly being anticipated by Ishihara et al '434.

Applicants submit that this rejection should be withdrawn because Ishihara et al '434 does not disclose or render obvious the positive-working photoresist composition of the present invention.

Ishihara et al does not identically describe or anticipate the present invention. As explained in the Amendment filed November 17, 2005, the Examiner has not pointed to a specific working example in Ishihara et al '434 which anticipates the present claims. Rather, the Examiner has reconstructed the positive-working resist composition of the present invention from Ishihara et al's disclosure using hindsight. Ishihara et al in formula [11] at page 7 and formula [12] at page 8 discloses a very broad genus of resins. The Examiner has made numerous selections to reconstruct the present invention. For example, the Examiner has required t to be a natural number, but t may be 0.

Similarly, the Examiner has chosen R⁽¹⁸⁾ to be an alkyl group to satisfy the requirements for resin A2 in present claim 3. However, formula (3) in present claim 3 requires that Z₁ be a hydrocarbon group having from 1 to 5 carbon atoms, whereas R⁽¹⁸⁾ in Ishihara et al '434 is an alkyl group "having generally 1 to 10 carbon atoms." Thus, the Examiner necessarily has selected only those groups having 5 carbon atoms or less.

Further, in formula [12] of Ishihara et al, the Examiner has required that r' be a natural number, when r' in formula [12] of Ishihara et al may be 0.

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Still further, there is nothing in Ishihara et al '434 which suggests using, in combination, a resin satisfying the requirements for resin A1 of the present claims and a resin satisfying the requirements for resin A2 of the present claims, as required by present claim 3.

Still further, the Examiner has selected R⁽¹⁹⁾ in formula [11] and [12] of Ishihara et al to be a hydrogen atom, apparently to meet formula (4) in present claim 6. See the first repeating unit illustrated for formula (4) at the bottom of page 22 of the present specification. In regard to claim 6, the Examiner has also required that e be a natural number other than 0, when per Ishihara et al., e may be 0.

Even still further, Ishihara et al does not disclose working examples which use a resin corresponding to the resin described in the present application. In the repeating unit represented by formula (1) contained in the resin of the present invention, Z represents a hydrocarbon group having from 6 to 30 carbon atoms. In contrast, Ishihara et al only discloses a repeating unit with a hydrocarbon group having 2 carbon atoms (ethoxy) in the position corresponding to -O-Z in present formula (1). That is, the structures of the resins are originally different.

A similar analysis could be made for present claim 7, as for claim 6.

For all of these reasons, Ishihara et al '434 simply does not disclose or fairly suggest the positive working resist composition of the present invention. To reconstruct an invention from a highly generic disclosure based on hindsight, as has been done in the present case, is improper and is not the appropriate test of patentability under §103. The present invention is patentable over Ishihara et al '434.

In the present Action, the Examiner essentially asserts that the rejection is "not based upon impermissible use of hindsight because they are not depended upon any information that

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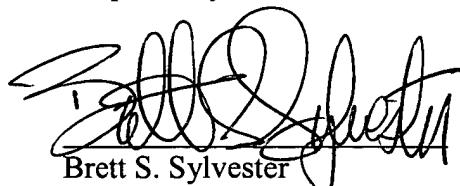
can be gleaned only from Applicants' specification in accordance with the authority stated in In re McGlaucklin, 170 USPQ 209." It appears to Applicants that the Examiner's position lacks merit because he has in fact used Applicants' specification, namely, the claims, which are part of the specification, to reconstruct the present invention from the highly generic disclosure of Ishihara et al.

In view of the above, the Examiner is respectfully requested to reconsider and withdraw the §102 anticipation rejection of present claims 1-4 and 6-11 based on Ishihara '434.

Allowance is respectfully requested. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Brett S. Sylvester
Registration No. 32,765

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
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CUSTOMER NUMBER

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